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ABSTRACT

This manual is part two of a three-part series of materials from a family literacy demonstration project conducted in Philadelphia public schools. It contains materials on 10 themes that were taught over a 7-month period. The activities in each theme are organized into class activities and home activities. The class activities support the adults' learning. The home activities include some for parents and others for parents to use with children. Information is provided on the purpose for the activities and materials needed; parents' background handouts also are included. The 10 themes covered in the manual are the following: an exploration of patterns; sequencing; home budget and money mathematics; fractions and manipulative objects; percents and probability; categorizing; science explorations; family stories; family writing; and child development. (KC)

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ED 372 293

PARENTS, CHILDREN AND LEARNING

A FAMILY LITERACY CURRICULUM to Support Parents of Children in Kindergarten and First Grade

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Part Two

ADULT ACTIVITIES

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Dorothy Miller-Clemmons, the first family literacy coordinator, planned and supported the early part of the project. When Dorothy left, Debra Cherkas took over as the coordinator. Her efforts were particularly important in planning and implementing the summer program.

Alisa Belzer, the program evaluator, went far beyond the requirements of her role in the project. She encouraged the staff to continue in its struggle to define family literacy and supported their efforts to meet the needs of parents in the program. Kathy Luna worked as evaluator over the summer supporting staff with her insights and suggestions.

Catherine DeLong Smith and Yvette Walls shared their instructional ideas and editorial insights.

Rose Brandt, director of educational planning, played a key role in helping staff to explore ways to mirror the kindergarten and first grade curricula and in finalizing these curriculum materials.

JoAnn Weinberger, executive director, worked with the project from the initial planning through to the completion of the final report and curriculum materials.

The principals and staff of the William Dick, William B. Mann and the General Philip Kearny Elementary Schools welcomed us into their schools and assisted us in many ways. Over the summer their facilities and materials made the days more pleasurable.

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Overview

The first phase of the Family Literacy Demonstration Project provided instruction for parents during the school year. The adult activities in this manual were used during the first phase of the project and during the parents portion of the summer program.

Instruction for adults mirrored the kindergarten and first grade curricula. (See Mirroring and Scope and Sequence Grid in Part One.) Parents explored topics of interest to them using adult materials and activities. Then, they looked at how these activities related to their children's learning. Examples of themes from the kindergarten and first grade curricula include:

Kindergarten Theme	Adult Lesson
classification of shapes	classification of news items

First Grade Theme	Adult Lesson
understanding sequencing	sequencing of events in writing

The need to relate instruction to curricula from grades other than kindergarten and first emerged as it became apparent that the participants were parents and caregivers for children of a variety of ages. An example of instruction which related to curricula of other grades is:

Other Grade Theme	Adult Lesson
use of decimal numbers	figuring out a monthly budget

Classes met in elementary schools, four days a week, 2.5 hours each day. Parents used computers to write books for their children, express their own thoughts through word processing and learn skills such as budgeting.

Using This Manual

This manual contains materials on ten themes which were taught over a seven month period of time. Some of the themes were taught as continuous units. Other were taught over longer periods of time as a part of each class session. For example, Science Explorations consists of activities to help parents to identify opportunities for exploring science through every day activities. The activities in this theme were used throughout the program.

The activities in each theme are organized into class activities and home activities. The class activities support the adults' learning. The home activities include ones for parents and others for parents to use with children. Many of the activities for parents are what could be called homework. However, in most cases, parents were given a range of activities to choose from to do at home. Also, reporting back on these activities usually meant reporting back to other parents. Some of the activities for parents to use with children are practiced in the class. For others, materials are made in class. Still others of the activities are such that parents can learn them on their own.

It is hoped that these materials will support learning parents and children in programs that support help them to identify and meet their educational goals.

Theme 1

An Exploration of Patterns

An Exploration of Patterns

Purpose:

1. Recognize patterns in the world around us, for example, in science, math, behavior, literature, and art.
2. Recognize the importance of patterns in problem-solving, prediction and analysis of events.
3. Learn how to introduce children to patterns.

Materials: natural and man-made objects which display a pattern such as shells, fabric, pieces of wallpaper or cloth, snake skin, turtle shell, honeycomb
books: *The Baby Leopard, The Three Little Pigs, The Little Red Hen*
handouts: Counting Chart from 1 to 100, Multiplication Chart.

Class Activities:

1. Have a discussion to answer the question, "What is a Pattern?" Write all answers on newsprint. Have learners look up the word "pattern" in a dictionary if that is helpful and compare the dictionary definition with the class definition.

2. Hand out both natural and man-made objects, one object to each learner. Have learners find patterns in the objects. Ask learners to draw the pattern on a piece of construction paper. Then, have learners share their objects and describe the patterns. Compare and contrast types of patterns found. Discuss why the natural objects might have the patterns that they do. Also, discuss why the man-made objects have the patterns which they do.

3. Discuss patterns as repetition. Give examples of patterns and have learners identify the set of things being repeated. Have learners make up their own patterns, share with each other and

guess what the patterns are. Examples include numbers, shapes, colors and letters.

4. Have learners break into groups. Give each group a different topic to discuss in terms of patterns. Examples of topics include the seasons, how people behave, the bible, presidents, and conversations. Have the learners write out or draw what they think the pattern is.

5. Discuss patterns that can be found in the home. Possibilities include bricks on the house, bedspreads, clothing, wallpaper and floor tiles. (See Home Activities, Activities for Adults, #1 below.)

6. Hand out *The Baby Leopard* to one group, *The Three Little Pigs* to another, and *The Little Red Hen* to the third group. Have the groups read the books out loud and discuss what the pattern is in their story.

7. Come back together as a large group and discuss the pattern in each story. Explain that stories with patterns are important to read to young children for several reasons:
   - ~ patterns help children learn to make predictions while reading,
   - ~ patterns can be used to involve the child in telling the story and
   - ~ patterns add to the enjoyment of storytelling with young children by creating a sense of familiarity with the story and often providing an element of humor in the story.

8. Discuss the parts of the three step reading process using the Parents' Handout on Reading.

9. Review the three steps in reading, identifying activities which are appropriate for use with children before, during and after reading. List the learners ideas on newsprint.

10. Break into small groups again and have the groups use the patterns in the stories to develop questions which they could use while reading the book with their children. The questions

should help to develop the children's skills in predicting the outcome.

11. After parents have taken books home and worked on predicting the outcome, have them discuss their experiences reading to their children and share their observations.

12. Move to looking at patterns with numbers. Hand out the Counting Chart from 1 to 100. Have the learners place a penny on numbers 10, 20, 30, 40, 50, 60 and 70. Have them discuss what the pattern is. Once they figure out that it's adding 10 to the last number, have them figure out that the next three numbers will be 80, 90 and 100. Repeat the activity with other patterns, for example, 5, 10, 15, 20 and 2, 4, 6, 8. Then, have them make up their own patterns for others to figure out and continue.

13. Hand out the Multiplication Chart and have the learners find patterns in the tables. Build on the patterns that have been explored so far, for example, 1 x 10 = 10, 2 x 10 = 20, 3 x 10 = 30. Help the learners to see that multiplying by ten is the same as counting by ten's or adding ten each time. Move on to more difficult examples such as if 7 x 8 = 56, what is 7 x 9? Discuss that finding the answer involves counting by seven's or adding another seven to 7 x 8. Help learners to see multiplication as a short cut for repeated addition of a number.

14. Discuss ways of using patterns to support children's math learning. (See suggestions under Activities for Parents to Use with Children below.)

Home Activities:

A. Activities for Parents

- Look for patterns at home, inside and outside. Make it a family activity.

- Keep brief notes while reading, writing down thoughts before, during and after reading.

- Look for math patterns in daily life. These could relate to biological cycles, budgeting needs or time management.

- Read the brochure "Read to Me" and try some of the ideas. Keep notes on how things went. Report back to the class.

B. Activities for Parents to Use with Children

- Pattern Stories
  Read stories with patterns and use questions for predicting the outcome as explored in the class activities above.

- Pattern Walks
  While taking a walk, look for patterns around you, for example, the bark on a tree, the design on a sewer cover, signs, clouds, flowers or bird or butterfly wings. Do a rubbing of the pattern if it has a texture. Keep a collection of different patterns. Discuss shape, color, size or symmetry.

- Pattern Treasure Hunts
  Look around the house for patterns. Compare the different types you find and where you find them. Which room has the most patterns? What is your favorite pattern?

- Pattern Games
  Make pattern games using construction paper. Glue shapes in a pattern on a sheet of paper of a different color. (A checker board is a common game board design which is based on a pattern of repeated squares.) Have players role a die and move a playing piece the number of spaces indicated by the roll. Or make creating the pattern a game in itself. For example, have each player roll a die and put down as many pieces to the pattern as indicated by the roll. For example, rolling a "3" would allow the player to put down three pieces to start a pattern. The next player would have to continue the pattern. Make it more challenging by covering up the original pattern and working from memory.

- Pattern Songs
  Sing "This Old Man," "I Knew an Old Lady Who Swallowed a Fly" and other songs with repeated patterns. These are fun and help children to learn about patterns in stories.

- Pattern Clapping
  Have children follow simple pattern rhythms such as clap hands, clap hands, slap knees, clap hands, clap hands. Have them make up patterns for you to follow.

- Math Patterns
  Color number charts to show counting patterns. For example, counting by two's will give you vertical stripes and counting by three's will give you diagonal stripes. What happens if you color the two's yellow and the three's blue? Hint: You should end up with some green boxes.

Parents' Handout on Reading

What we get out of reading depends on who we are and how we read.

A good reading process involves:

- before-reading activities - brainstorming, forming questions, discussing background information, and making predictions.
- during-reading activities - assessing predictions, answering questions, making new predictions, and raising new questions.
- after-reading activities - comparing predictions to what actually happened in the story, answering questions raised, reviewing facts, discussing characters, responding to the story, and evaluating the story.

When reading to children, try these activities:

- Before-reading:
  Looks at the title of the story and the pictures and share your thoughts or ideas.

- During-reading:
  Read the story a section at a time. After each section, talk about what happened so far and what you think will happen next.
  When you turn the page, look at and discuss the new pictures.
  Use gestures, sounds and expressions to make the story come to life.
  As children become familiar with the story, have them tell the part of the story they know.

- After-Reading:
  Have children retell the story in their own words.
  Talk about "What would happen if..." What would happen if the little red hen decided she was too tired to plant her seeds?
  Have children do an activity such as drawing or making up a song to represent their favorite part of the story.
  Have children retell the story in their own words. Record their story for them to read.

Counting Chart from 1 to 100

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Multiplication Chart

	0	1	2	3	4	5	6	7	8	9
0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9
2	0	2	4	6	8	10	12	14	16	18
3	0	3	6	9	12	15	18	21	24	27
4	0	4	8	12	16	20	24	28	32	36
5	0	5	10	15	20	25	30	35	40	45
6	0	6	12	18	24	30	36	42	48	54
7	0	7	14	21	28	35	42	49	56	63
8	0	8	16	24	32	40	48	56	64	72
9	0	9	18	27	36	45	54	63	72	81

Theme 2
Sequencing

Sequencing

Purpose:

1. Develop parents' knowledge of sequential order in stories - beginning, middle, and end.
2. Recognize ways to help child understand sequencing by using sizes, letters, numbers and stories.

Materials: comic strips consisting of four frames
adult reading materials in which sequence is essential to the story, for example, "Miracle at the Pump House" from *The Helen Keller Story*.
children's books which clearly demonstrate sequencing, for example, *Cloudy with a Chance of Meatballs"* or *Alexander Who Used to Be Rich Last Sunday"*
3 x 5 cards, glue, circles of various sizes, 5 x 8 cards, sentence stripes
an alphabetized list of class members' names, ruler, thermometer, calendar of the current month, geometric cubes, simple five line story, a series of pictures showing a caterpillar becoming a butterfly or a seed growing into a flower.

Class Activities:

1. Bring in a simple comic strip, four frames at most, cut into separate frames. Have parents put the strip back together in order. Discuss how they knew what comes first, second, third and fourth. Discuss how they used their experiences and reasoning skills to put the frames in the correct sequence. If learners have arranged the frames in different ways, discuss the reason for the different arrangements. There is no right or wrong answer here. Some arrangements may be funnier than others but any arrangement which the creator can explain is fine.

2. Introduce the word "sequence." Ask learners to suggest other words for the sequence of events, for example, the order of events, the way things happened or telling what happened 1st, 2nd, 3rd and so forth.

3. Introduce the idea of sequence of events in a story. Explain that stories usually have a beginning, a middle and an end. Ask the class to identify the role of each of these sections in a story and record the information on chart paper. To facilitate this process, ask the group to identify ways in which storytellers begin stories to try to get the reader's or listener's attention, what they do as the story progresses to keep the story interesting and how storytellers let their listeners know that the story is over. The class chart might look something like this:

<u>Beginning</u>
gets us ready for the story
gives background information
introduces the time and place
introduces the characters

<u>Middle</u>
the body of the story
contains the action
creates some tension

<u>End</u>
concludes the action
resolves the tension

(If the group brings up a technique such as flashback in which events are presented out of the order in which they actually occurred, explain that these are more sophisticated devices and that the reason that they have the effect on us that they do is because we expect events to be in order. Record these devices under a heading such as "Special Effects" and return to a discussion of these at a later time.)

4. Have the class read a brief adult piece such as "Miracle at the Pump House" from *The Helen Keller Story* and identify the beginning, middle and end of the story.

   Record the information in chart form on the board as follows:

	Title of Adult Reading
Beginning	
Middle	
End	

5. Provide the learners with copies of two children's books in which sequence is a key ingredient. Point out that understanding the sequence of events is important to understanding the meaning of a story. Allow learners to read the books independently, in pairs or in small groups.

6. Discuss what the beginning, middle and end of each of these stories is. Expand on the chart above as follows:

	Adult Reading	Children's Book #1	Children's Book #2
Beginning			
Middle			
End			

7. Look at other children's stories if learners choose.

8. Develop sequence of events further through an oral exchange of stories. Encourage parents to tell stories of something that happened this week. Have other learners ask questions to gain clarity about the sequence of events. For example, if a parent says "My daughter and I both got sick," questions might include: "Who got sick first?" "When did you notice she was sick?" "How long was it before you got sick?" "Are you both better now?" Have the parent retell her expanded story, for example, "Last Saturday, Kianna looked pale and tired so I put her to bed. By Sunday morning, I was sick too. By Sunday evening, she was feeling totally better. I'm still feeling sort of tired."

9. Use the Story Sequence Boxes to create a written plan the stories.

Story Sequence Boxes

Beginning Box

Who are the characters in your story?

When and where does it happen?

Middle Box

What is the problem or event that happens to the characters?

How does the problem develop?

End Box

How does the problem get solved?

Who solves it?

If it doesn't get solved, what ends up happening to the character's problem?

10. After they have filled in sequence boxes, have the learners share their stories again. Encourage them to ask each other questions to get further details of the stories.

11. Use the sequence boxes to write first drafts of stories. If computers are available, do the writing on the computers.

12. Have learners share their written stories and provide feedback to each other on the development of the story, noting the sequence of events in the story from the beginning, through the middle and to resolution in the end.

13. Have learners revise their stories based on the input from sharing.

14. When learners are satisfied with their works, make a book of all the stories. Read them aloud, sharing comments as a group.

15. Explore further the importance of sequencing using the following materials:
    - an alphabetized list of class members names
    - a ruler and thermometer
    - a calendar for the current month
    - geometric cubes of various sizes
    - a simple five line story
    - a series of photos showing a caterpillar becoming a butterfly or a seed growing into a flower.

    Discuss how these involve sequential order and why it is important for children to have a grasp of sequencing. Discuss the kinds of sequencing involved in using each item.

16. Have parents select activities from Sequence Cards in the Activities for Parents to Use with Children below and prepare materials to take home and use. Practice the activities with another parent. After the activities are completed, ask the parents to discuss what characteristics they used to put the cards in sequential order. List the characteristics on newsprint.

17. Next, have parents discuss how they could use the other activities listed below with their children and what their children could learn from the activities. Write their ideas down on newsprint to provide positive reinforcement for all ideas and activities.

Home Activities:

A. Activities for Parents

- Keep a journal of daily activities. Show the sequence in which things happened. Discuss how the sequence affected the outcome. For example, "I put the rice on to boil. Then, the phone rang. It was an old friend I hadn't spoken to in years. We talked for a long time and then I smelled the rice burning."

- Make a To Do list prioritizing things in the order in which they need to be done.

- Begin an autobiography. Make a plan of what will be in the autobiography based on the sequence of events in your life, for example, what you remember from your early childhood, starting school, your first job and your first child.

- Keep notes in a journal on how you used sequencing activities with your children, how they worked and what problems you encountered. Bring in the notes to discuss in class.

B. Activities for Parents to Use with Children

- Sequencing Cards
  a. Label 3 x 5 cards with alphabet letters from A to K. Mix up the letters then put them in the correct sequence.
  b. Label 3 x 5 cards with the numbers 1 - 20. Mix up the numbers so that they are not in order. Put them in order.
  c. Label 3 x 5 cards with sets of dots from one dot to ten dots. Put them in the correct sequence.
  d. Cut out circles of increasing size and put them in sequence.

- Pennies/Beans/Dots
  Glue one to ten objects such as dots or pennies on 5 x 8 cards. Arrange the cards in sequential order by the number of items on the card. Practice counting with the child while he or she is using the cards. Use number cards made in the previous activity to match up with these dot cards.

- Make an ABC Chart
  Write the letters "A" to "Z" as a sequence on a strip of paper. Put the strip up in the child's room near the bed. Sing the A B C's together and have him or her point to each letter as you sing.

- Shapes and Sizes
  Cut out ten shapes of decreasing size from construction paper and glue them on ten 5 x 8 cards. Practice ordering shapes according to size.

- Numberline
  On 3 x 5 cards, write the numbers 1 - 20. On a long strip of paper, make a numberline from 1 - 20. Have children practice counting and matching numbers.

- Rulers
  Use rulers to measure objects to the nearest inch.

- Sequence Stories
  Read stories with an easy beginning, middle, and end, for example, *The Three Little Pigs, Little Red Riding Hood* and *The Baby Leopard*).

- Singing Nursery Rhymes
  Sing songs which involve sequence such as *Jack and Jill, Mary Had a Little Lamb* and *Humpty Dumpty*.

- Sequence Pictures
  Teach sequence using pictures to discuss everyday activities, for example, after school we 1) wash 2) eat a snack 3) do homework 4) play 5) wash 6) eat dinner 7) get ready for bed 8) read 9) sleep.

Theme 3
Home Budget and Money Math

Home Budget and Money Math

Purpose:

1. Understand budgeting terms and process.
2. Use mathematical skills such as addition, subtraction, and multiplication to establish a monthly budget.
3. Introduce negative numbers.
4. Recognize how to use pennies, nickels, dimes, and quarters to enhance children's knowledge of counting, adding, saving, and understanding more than and less than.
5. Explore strategies for shopping that will help save money.

Materials: coins - quarters, dimes, nickels, pennies
paper, pencils, newsprint, markers

Class Activities:

1. Discuss what a budget is and what types of things you can budget, for example, time or money. Continue the discussion to determine why we budget and in what ways we already budget. List responses.

2. Begin the process of making a budget. On one sheet of newsprint write the work "income." Discuss what income is. List all the types of income which parents can think of, for example, salary, welfare, food stamps, child support and social security, On a second sheet of newsprint write the work "expenses." Discuss what expenses are. List all of the expenses which parents can name. Next encourage parents to categorize the expenses. For example, if they say gas, electric and telephone, ask them what category they could all come under. What are all these related to? They may say house bills or utilities.

3. Talk about how to create a monthly budget. For example, if you receive child support twice a month, then how would we find out the monthly child support (multiply by two).

4. Using information brought in from home (See Activities for Parents below.) or fictitious information, create a monthly budget together. Have parents tell you what to list in the Income column. Add up the income together as a class. Have parents tell you what to put in Expenses column. Add these up. Discuss the difference between the amount in the Income column and the amount in the Expenses column. Use this as an opportunity to work on addition, subtraction and multiplication of whole numbers and decimals. Explain that the difference between the two columns is the balance.

5. Discuss negative numbers using the idea of debt. Identify common terms related to balances such as "in the hole," "to the good," "in the black" and "in the red." Introduce formal budget terms of surplus and deficit. Determine whether the budget created results in a surplus or a deficit.

6. If the budget creates a debt, ask the parents how to get rid of it. Discuss looking at expenses and spending less. What are luxury items that we can cut out to decrease spending? Also, if there is a particularly high item such as gasoline or car payments, discuss alternatives (perhaps public transportation or car pooling). If there are high charge card payments, how can these be minimized? Also, talk about what decisions need to be considered if income is higher than expenses.

7. Have parents discuss the class budget and their own experiences with budgeting. Some parents may choose to discuss struggles with money and their experiences with children's needs and desires and trying to balance it all emotionally. Others may prefer to talk pragmatically about budgeting. (While it is always important to respect the privacy of learners, money can be a particularly sensitive topic.)

8. Have parents write about their experiences with budgeting. Individuals may choose to write about successes and how they feel about their successes or struggles they have with budgeting

and strategies they use to solve them. If parents feel comfortable, have them share these writings.

9. Ask parents to identify experiences their children have with money. Possible answers may be include allowance, paying for things at the store or piggy bank savings. Get parents to give specific examples and list the responses on newsprint.

10. Ask parents to think of how their children can learn budgeting through their experiences with money and discuss specific examples, such as, "I give my child an allowance. He saves it. Then, he sees a toy he wants and we count to see if he has enough money. If he does not, we figure out how long it will take him to save up enough money."

11. Pass out pennies, dimes and nickels. Give a pile of each to every parent. Work with them to play the money games listed under Activities for Parents to Use with Children below.

12. Have parents evaluate this experience. Talk about what was helpful. How? Next, have parents write a plan of the activities they might try at home with their children.

13. After parents have used the activities at home, discuss how it worked and any suggestions they might have.

14. Have parents write up shopping lists. Then, use the supermarket advertisements in the food section of the newspaper to locate the cost of items which are advertised. Look for coupons for money off on items. Compare coupon policies of different stores.

15. Select an item which is advertised at different stores and compare the costs. Discuss what strategies the learners would use to decide where to buy the item. List the learners' strategies on the board. All considerations should be included, for example, time, cost of the product, availability of coupons, family members' preference for a particular brand, cost of transportation to the store and safety getting to and from the store.

16. If learners choose, have them set some goals for shopping, for example, to plan ahead and buy items when they are on sale, to try a cheaper brand or to start saving coupons. Check back in a week or two for them to discuss how their plans worked.

Home Activities:

A. Activities for Parents

- If parents choose, have them bring in real figures of their income and expenses for use in creating a class budget or in creating an individual budget. Income should be listed on one page, expenses on another. They can add columns at home or get assistance when they come to class.

- Plan a budget and keep a record of income and expenses related to the budget. Revise the budget to reflect any costs which you didn't anticipate.

- Learn to keep score in a card game where scores can be "to the good" or "in the hole." Practice using negative numbers by keeping score.

B. Activities for Parents to Use with Children

- Penny Toss
  Draw a line down the middle of a large sheet of paper. Take a set number of pennies, for example, five pennies. Throw the pennies on the paper. Count how many are on the one side of the line. Count how many are on the other side of the line. Write a math problem to show this, for example, 2 + 3 = 5. Repeating this activity with the same set of pennies will show all the different combinations which add up to five, i.e., 0 + 5, 1 + 4, 2 + 3, 4 + 1, and 5 + 0.

- Money Exchange
  Figure out how many pennies are needed to get a nickel? How many pennies are needed to get a dime? Are there other ways to get a dime? (5 pennies and 1 nickel or 2 nickels)

- More Than, Less Than
  Each player takes some pennies and hides them in his or her hand. Players take turns deciding which will win, "More Than" or "Less Than." The player whose turn it is calls out either "More Than" or "Less Than." The players open their hands to reveal their pennies. The winner is the player whose number of pennies matches the call.

Theme 4

Fractions and Manipulative Objects

Fractions and Manipulative Objects

Purpose:

1. Introduce manipulative objects found in households as a way of teaching sets.
2. Review basic operations of addition, subtraction, multiplication and division using manipulative objects.
3. Review the basic concepts of fractions.
4. Design a lesson using objects to teach math concepts to children.

Materials: sugar cubes, water jugs, beans, bread, flour, raisins, candy, marshmallows, six cups, water

Class Activities:

1. Tell parents they will be exploring new ways to think about math that involve using concrete objects for learning. Explain that we learn in different ways. Many people, and particularly children, learn best through activity and using concrete objects to help understand concepts.

2. Demonstrate how addition can be represented by joining two or more sets of objects. Then, show subtraction by taking smaller sets out of a larger set. It works well to show related addition and subtraction facts, for example, 5 + 3 = 8, 8 - 3 = 5. Explain that subtraction undoes addition.

3. Create several sets of the same number of objects. Then, combine the smaller sets, counting the number in the combined set each time you add another smaller set, for example, combine five sets of three objects saying "3, 6, 9, 12, 15." Describe in words what was just done, i.e., "Five sets of three objects were combined to make one set of fifteen objects." Write an addition problem to show what was done, i.e., 3 + 3 + 3 + 3 + 3 = 15.

4. Ask the class if there is any other way to represent combining sets of the same number of objects. Explain that multiplication is the same as repeated addition. Write the multiplication problem to describe the combining of sets in step three, i.e., 5 x 3 = 15. Practice multiplication with manipulative objects by putting small sets of the same number of objects together into larger sets.

5. Refer back to step two where addition, combining sets, was undone by subtraction, taking sets away. Ask the parents what they think might undo multiplication. Explain that division can be shown by pulling smaller sets out of a larger set. Recreate a set of fifteen objects by combining five sets of three objects. Show the addition and the multiplication problems which describe the action, i.e., 3 + 3 + 3 + 3 + 3 = 15 and 5 x 3 = 15. Undo the multiplication by removing sets of three objects from the set of fifteen. Explain the activities in words, i.e., "Fifteen objects divided into sets of three objects each gives us five sets." Show the division problem which describes this action, i.e., 15 - 3 = 5.

6. Discuss the activities using manipulative objects to show basic operations. Encourage parents to share any observations they have on how it went, what they got out of it or what they think their children would learn from these activities. Explain that doing math with objects helps people to "see" what is going on, whether they are adults or children.

7. Review the basic concepts of fractions verbally and at the board. Explain that a fraction can be a part of a whole, like slices of a pizza or a pie, or part of a set, like the smaller sets which were taken from the larger sets above.

8. Create a set of 15 objects. Create sets of three objects from the set of 15. Ask the group to describe what part of the whole they would have if they were given one of the smaller sets. Record all answers. Then, return to the idea that fractions can represent a part of a set. Highlight recorded responses which state the relationship of the part to the whole in ways that can be

expressed in fractions. If necessary, add to the list: three objects out of fifteen objects and one set out of five sets. If fractions were supplied above when the group was describing what part of the whole they had, highlight these now. Otherwise, ask if anyone can express the relationship as a fraction. If the parents are not able to express the relationship in fractions, explain that there are two fractions which could be used, 3/15 and 1/5. Record these fractions on the list. beside the phrases "three objects out of fifteen objects' and 'one set out of five sets' respectively.

9. Set up six glasses. Tell the group that the glasses are a set. Explain that you are going to use the set of glasses to practice writing fractions. Discuss the fact that fractions have three parts, a top number, a bottom number and a bar in between the two. Explain to the group that "six," the number of glasses in the set, is recorded as the bottom number called the denominator. Show a fraction bar and indicate where denominator is placed, "/6." Emphasize that the bottom number tells how many are in the set.

10. Fill three glasses with water. Explain to the group that the number of filled glasses can be represented as the numerator of a fraction. Tell them that, in this case, the numerator indicates how many glasses in the set have water in them. Complete the fraction begun in step nine by adding the numerator to get 3/6. Describe the situation in words, for example, "There are three glasses with water in them out of a set of six glasses."

11. Repeat activities showing fractions as part of a set using egg cartons, M&M's or other objects. Have parents write fractions to represent the situations which they create with the objects. Ask if there are any questions on numerators or denominators used to show parts of a set.

12. Remind the parents that fractions can be used to show parts of a set or parts of a whole. Pass out slices of bread and marshmallows. Demonstrate what 1/2 of a slice of bread is, and then 1/2 of a marshmallow. Ask learners if they can see that 1/2 has the same relationship to the whole, whether it is a whole

slice of bread or a whole marshmallow. Repeat this activity with 1/3 and 1/4. Remind the learners that, in a fraction, the parts are supposed to be equal. Suggest that they try to make the parts which they create from the bread and marshmallows as equal as possible but that they shouldn't worry about the parts being exactly equal. Have the learners work together using the bread and marshmallows show parting of the whole and representing the situations they create as fractions.

13. Pass out all the different manipulative objects and ask learners to create a fraction using them. Go around the room and ask what the denominator and numerator is in each case. Review the value of using manipulative objects to teach math concepts.

14 Explain that one of the goals of this lesson is teaching the learners new ways to think about education. Not everything has to take place on paper and in fact, things are often learned better in other ways. Ask learners to design a math lesson using objects to use with their children. Explain that it does not matter what lesson they come up with as long as it uses concrete objects to teach. Learners' lesson will vary according to the skills and interests they have and the needs and ages of their children. Encourage parents with more advanced math skills to create ways to show difficult ideas such as multiplication and division of fractions.

15. Have parents teach their lessons to the class. Encourage the parents to use the packets with their children. The group should share how the lesson went and what they learned from it. Any ideas which would make the concepts clearer should be recorded. The parents can revise their lessons and the final copies can be compiled in a packet of math activities for parents to use with children.

16. Have parents write a journal entry discussing what they learned by exploring math with manipulative objects, developing and teaching a math lesson with objects and/or working on activities from the compiled packet with their children.

Home Activities:

A. Activities for Parents

- Look for ways to use objects to explain math to children. Keep a record of your ideas and how they worked.

- Create a handy set of objects which you and your children can use when working on math. Try to find things that come in sets of different sizes such as two socks in a pair, six sodas in a pack and twelve eggs in a dozen. Figure out how many of the object are in different numbers of sets, for example, six sets of socks. At first, use the objects. Then, try to figure it out without objects.

B. Activities for Parents to Use with Children

- Exploring Math
  Use manipulative objects to work with children to explore math at the child's level, for example, counting, adding or dividing.

- Everyday Math
  Find ways to incorporate math in everyday activities such as counting the steps from the first to the second floor or figuring out how many cookies to put on the plate if there are three children and each can have two cookies.

- Math Lesson
  Use one of the parent-developed lessons from the packet with their children. If any new teaching ideas emerge from this process, bring these back to class and present them.

Theme 5

Percents and Probability

Percents and Probability

Purpose:

1. Review percents and their relationship to decimals and fractions.
2. Use manipulative objects to investigate probability.
3. Compare how probability is written as a percent, a decimal and a fraction.

Materials: coins, beans, dice, M&M's

Class Activities:

1. Explain that percents are another way to express a part of a whole or a set. Percents always maintain a whole of 100 parts. They are written as the number of hundredths with a percent sign %. The advantage of percents is that they can be easily compared because the denominator is always the same. Ask learners to decide which is larger, 4/25 or 3/20. If learners do not know how to change fractions to decimals, simply acknowledge that these two fractions are difficult to compare. If learners know how to change fractions to decimals, allow them to do the work to discover which is larger. Then, ask learners which is larger, 16% or 15 %. If learners did not change the above fractions to decimals, point out that 16% is another way to express 4/25 and that 15% is another way to express 3/20. Point out that presenting the information in percent form made it much easier to compare.

2. Tell the parents that percents are interchangeable with decimals and fractions. Explain that 21% is represented with the two place decimal .21, read "twenty-one hundredths.". Point out that 21% is also equivalent to the fraction 21/100, read "twenty-one hundredths" or twenty-one over a hundred." When percents are changed to fractions, the denominator is 100.

3. Tell parents that percents, decimals, and fractions are like triplets born to a set of parents. They are able to take the place of each other; however, they each have different personalities and work best in certain situations.
   * Fractions are the basis of the English measuring system.
   * Decimals are used for our money and metric systems.
   * Percents are used for store sales, taxes, finance charges and must be changed into fractions or decimals for computation.

4. Ask the parents what they think the chances of making it home from class without falling down on the ground are. Ask them what the chances are that they will win a trip to Europe by tomorrow without entering any contest.

5. Explain to the parents that determining the chances of something happening is determining probability. Write the definition of probability on the board as "the chance that a specific happening will occur." The happening can relate to weather, a hand of cards, or the type of coin you pull out of your pocket at any given try.

6. Explain that probability can be written as a fraction with the number of favorable outcomes as the numerator and the number of possible outcomes as the denominator as follows:

$$\frac{\text{the number of favorable outcomes}}{\text{the total number of possible outcomes.}}$$

   Write the formula on the board.

7. Take a coin and ask what the probability is of getting heads on a coin toss. Use the formula above to determine that the number of favorable outcomes is one, a head; while the number of possible outcomes is two, a head or a tail. Write this as a fraction 1/2 and express it in words: "The odds (chances, probability) of getting heads on a coin toss is one out of two."

8. Place 4 black beans and 3 white beans in your hand. Ask the parents what the chances are of getting one white bean out of the group if you pick one bean at random. List learners' responses. Then, take a look at the formula and write a fraction to describe the situation with the beans. Ask what the total number of favorable outcomes is. It may need to be explained that, while picking a white bean sounds like one possible outcome, in fact, there is white bean #1, white bean #2 and white bean #3, or three possible favorable outcomes. Then, ask what the total number of possible outcomes is. Again, it may seem that possible outcomes are either white or black and parents and may say two possible outcomes. Or they may look at the number of black beans and say four for the denominator. If the number of possible outcomes is not clear to all learners, talk through the possibilities as above: possible outcomes include white bean #1, white bean #2, white bean #3, black bean #1, black bean #2, black bean #3 and black bean #4. There are a total of seven possible outcomes. The odds are 3 out of 7.

9. Use the bean scenario to review the formula for probability with the learners. Point out that the total number of beans in your hand was 7 and that the number of white beans was 3. Therefore the chances of getting a white bean were 3 out of 7. The 3 represents the number of favorable outcomes. The 7 represents the number of possible outcomes. Change the number of black and white beans and work with this until everyone understands.

10. Explain that one way to write these odds or probability is 3/7. Ask the learners if this looks familiar. It should, it is a fraction. Point out a fraction shows the total on the bottom, the denominator, and the parts used on the top, the numerator. In the probability 3/7 read "3 out of 7," the 3 is the numerator, representing the number of favorable outcomes, and the 7 is the denominator, representing the number of possible outcomes.

11. Practice using M&M's to show probability. Have learners discuss any rules for sharing M&M's which they remember from childhood or which they see their children enforce, for example,

"You can have one, but not a red one." Ask why they think these rules exist. After agreeing that most people believe that the number of M&M's of each color is not the same, open a bag of M&M's and test the theory. Count the number of M&M's of each color and record the information. Then, go back and figure out the probability of getting an M&M of each of the colors from the bag on separate tries. For example, if there are ten tan M&M's in a bag of forty, the odds of getting a tan one are ten out of forty.

12. Now, create a "fair" bag of forty M&M's in which each color is equally represented, in which there are in fact eight of each color. Compute the odds of pulling an M&M of a given color from the fair bag. Since there are eight M&M's of that color in a bag of forty M&M's, the odds are eight in forty or 8/40. After computing the odds for each color and determining that the odds for each color are 8/40, discuss the fact that the odds are the same because the number of each color is the same.

13. Dump the M&M's out of the bag and separate them into sets by color. Determine that there are five equal sets. Ask if anyone can express the odds of picking an M&M of a particular color in a way other than 8/40. Explain that since there are five sets of colors: yellow, green, red, tan, and brown; the chances of picking an M&M of any color is one out of five or 1/5. If learners have worked with equivalent fractions, ask them to discuss how 8/40 can be changed to 1/5. If they have not, simply point out that 1/5 is equal in value to 8/40.

14. Explain to the parents that probability is also expressed as percentages. On the weather report, the chance of rain is always a percent, for example, "There is a 30% chance of showers." Probabilities range from 0, there is no way it will happen, through 1, it will absolutely happen. A probability of 0 is the same as a 0% chance that it will happen. A probability of 1 is the same as a 100% chance of something happening. Another way of looking at this is 0% means 0 favorable outcomes out of 100 possible outcomes. 100% means 100 favorable outcomes out of

100 possible outcomes. The lower the percent, the less likely an event is to occur.

15. Review that fractions, decimals and percents are three different ways of saying the same thing "a part of a whole or a set." Use the manipulative objects to review the different ways of talking about the parts of a whole and a set.

Home Activities:

A. Activities for Parents

- Listen to the weather report and use the information to plan your activities. On a calendar, keep a record of the weather prediction and what actually occurred.
- Find out the probability of winning the lottery. Decide if you think it is a good investment of your money.
- Talk with an insurance broker about the cost of life insurance. Find out how the company determines the cost.
- Research the safety of different kinds of transportation. Do you think people should be more afraid to fly or to ride in a car based on the probability of being injured in a plane or a car crash.
- Figure out the probability of rolling numbers 1 through 12 on a pair of dice. Share what you figured out with the class.

B. Activities for Parents to Use with Children

- Board Games
  Play board games that use dice. Talk about how likely it is that certain numbers will be rolled.
- High/Low
  Roll one die. Guess whether the next number rolled will be higher or lower.
- Guess a Color

Play a guessing game with a bag of M&M's. Each person guesses what color he or she expects to pull out of the bag. If the guess is correct, the person gets an extra M&M. If the guess is wrong, the person only gets the one he or she took from the bag.

Theme 6
Categorizing

Categorizing

Purpose:

1. Learn mapping as a way to organize ideas.
2. Conduct research on a topic of interest.
3. Recognize ways to work with children on classifying, organizing, and sorting.
4. Create activities to practice categorizing with children.
5. Recognize the importance of basic concepts, such as shapes, sizes, colors, in children's learning; and to increase confidence using books and activities to enrich children's learning of these concepts.

Materials: book: *Shapes, Shapes Shapes*
scissors, glue, construction paper, miscellaneous objects - pine cones, boxes, lids, toys, fabric
Learn Together activity sheets

Class Activities:

1. Begin with a discussion of the meaning of the word categorize. Continue the conversation by asking parents to name things that they categorize. List all responses on a sheet of newsprint. On a second sheet of newsprint, tell how we categorize these things. On a third sheet of newsprint, list reasons why we categorize. The charts might look something like this:

Things we categorize	How we categorize	Why we categorize
laundry	by color	so the colors don't run
bills	by date due	so we can pay them on time

2. Have parents individually or in groups select newspaper articles which interest them, read the article and share with the group.

3. After the articles have been shared, identify topics which the articles cover and determine categories into which the articles fit, for example:

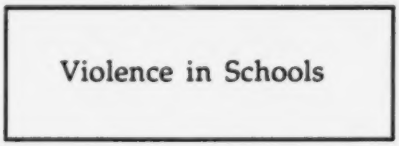
   Government Crime Education

   Identify subcategories:

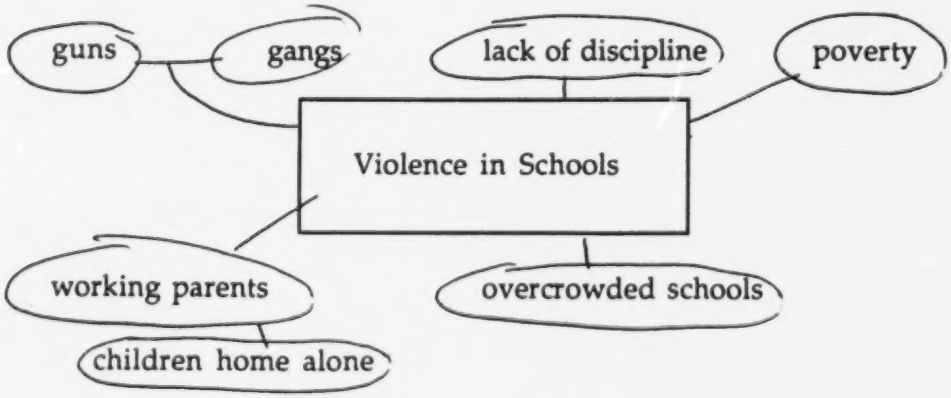
   local state federal international

4. Introduce mapping as a way of organizing or categorizing information after reading. Explain its importance for understanding and remembering what is read. Also, explain that notes taken in this way can be used later for writing a report or essay on a topic. Use a recent class reading to create an example of a mind map.

   Decide on what the theme or main idea of the reading was and place it in the center of a piece of newsprint like this:

   Then, have the parents tell all the details from the reading. Write these around the main idea. Each time a new idea is given, ask the person who gave the idea what it connects to and write the idea next to similar ideas already recorded. Connect each idea either to the main idea box or to the other ideas to which it relates. The finished mind map might look like this:



5. Have the parents identify questions which they still have about the topic. Ask them to identify categories of information which would help them to research the topic further.

6. Have parents make and share a map of their life stories. Do several mapping activities on different subjects or articles, for example, make a map for a department store or supermarket trip, one for a day in the life of their child or one of their favorite soap operas. Continue mapping activities until parents are comfortable with mapping as a means of categorizing ideas.

7. Have the parents map the articles which they read in step two above. Share the maps in pairs, small groups or as a class according to the learners' interests and abilities.

   Have parents add to the map to reflect what they already know on the topic. Then, have them write questions about what additional information they would like to find on the topic.

   Have the parents share their topics and questions. The other members should serve as resources when possible, providing information which addresses the parents' questions, especially information which they learned in the articles which they read. The learners can decide if the information should be added to their maps, whether it provides answers to any of their questions and whether to change their lists of questions based on information received.

8. Visit the library and have learners take out books on the topics they have chosen. Use the questions they wrote to guide their research. Add to their map as they find relevant information.

9. When learners feel that they have enough information, they should write a report on their topics.

10. Review the importance of categorizing ideas as a study skill to help in reading and writing. Explain that young children begin to develop categorizing skills with shapes, sizes and colors.

11. Help learners to focus on the importance of shapes through some of the following activities:
    - Discuss why shapes are important: geometry, fractions, measuring, science, art, letter writing, recognition, and spatial thinking.
    - Discuss what kinds of games or activities parents can do with children using shapes, for example, shape walks to find shapes around the house and in the neighborhood or hopscotch type games with shapes. List all ideas and suggestions.

12. Read *Shapes, Shapes, Shapes* by Tana Hoban. Bring in other books which discuss shapes, colors or sizes, to share with parents. Discuss how they can use them with their children. Encourage parents to take books out of the library to read to their children. After they have used the books with their children, discuss how it went.

13. Look at activities for helping children learn shapes such as *Learn Together* by Yvette Walls.

14. Cut shapes from construction paper and create pictures such as a clown's face or create patterns one might see in wallpaper or on fabric.

15. Discuss which shape games parents want to try at home. Have them keep a journal of what they tried and how it went and bring in their notes to discuss with the class.

16. Investigate common objects such as pine cones, lids, boxes, toys, and fabric of different sizes, shapes, colors and textures. Ask parents to work in teams to categorize objects. Discuss the categories and list them on newsprint. Identify the attributes of the objects in each category. Discuss all the different ways you could categorize the objects: by shape, color, size, weight, age,

natural or man-made, or by use. See how many categories each object fits. Use the terms frequently, often, seldom, always or never to discuss the classification of objects. If none of the categories is based on more than one attribute, explore such categories by asking questions such as "What do you have that is both round and red?"

17. Discuss the importance of categorizing and sorting in activities such as critical thinking, writing, math and science.

18. Brainstorm ways to help children sort at home: doing laundry, putting away groceries or separating coins. Discuss what children would get out of each activity.

19. Create sorting and classifying games for home use. At each of several tables have materials available to create a sorting game. Have parents decide what the basis of classifying would be:
    - different shapes cut from different colors of construction paper (shape, color)
    - different sized circles cut from construction paper (color, size)
    - different household items and found objects (size, use, color, shape)
    - magazines to cut pictures from to make your own categories (clothes, food, toys)
    - assorted objects grouped by some characteristic. One item in the group doesn't belong. The object is to identify which item it is and why it does not belong. Possible categories to be explored include:
        *clothes that zip and button
        *clothes for winter and summer
        *things that fly
        *animals with fur, feathers, and scales
        *fruits that we eat the skin of and those that we peel
        *objects that are soft, rough, shiny, dull
        *living and non-living things

20. After these are used at home, discuss how it went.

Home Activities:

A. Activities for Parents

- New concepts from news
  Bring in articles from the newspaper on topics discussed in class. Explain the article briefly to the class. If the learner chooses, he or she can summarize it on a map.

- Library research
  Continue research begun in class or research a whole new topic. Present what was learned to the class.

- Journal writing
  Discuss the importance of categorizing in learning for adults. Discuss its importance for children.

- Shape Games
  Think of shape games to try with children. Write out rules for the games. After using them with children, write about how it went. Bring the notes to class and discuss them.

- Household objects
  Bring in a mixture of objects. Have the class work in two teams to categorize the objects. Or, make up games with the objects. Teach the class the rules and let them play the games.

B. Activities for Parents to Use with Children

- Object Scavenger Hunt
  Go on a scavenger hunt. One player describes an object, saying "I'm looking for something that is ..." The description could be round, hard and white if he or she is describing a lid. The first person to name an object fitting the description wins and gives the next description.

- Library Hunt
  Have children see how many books they can find on a topic in the library.

- Shapes Games
  Play shapes games with children. Encourage them to make up rules for ways to play.

- Categories
  Play the game Categories in which one player names a category and subsequent players take turns naming members of the category, for example, animals: dog, cat, cow and horse.

Theme 7
Science Explorations

Science Explorations

Purpose:

1. Understand science as a way of thinking.
2. Investigate science concepts demonstrated in every day activities.
3. Learn science activities to use with children at home,

Materials: materials will vary depending on the activities chosen from the suggested activities below

Class Activities:

1. First, have a discussion of what science is. Continue the discussion asking: What are your memories of science in school? What kinds of science projects did you do in school? What did you learn? What kinds of science projects are your children doing in school? What do you think they are learning?

2. Talk with parents about how they use science in their everyday lives. Place a piece of newsprint on the wall and record any ideas learners have. They may not be able to think of ways that they use science at this point but should be able to think of ideas as they go along.

3. Explain that science is a way of thinking. It involves noticing something happening in the world around us, collecting and recording information on the event, making a guess or hypothesis about what is happening or why it is happening, testing the hypothesis, and if our hypothesis was proven right, going on to a new problem or, if our hypothesis was proven wrong, forming a new hypothesis, i.e., making a new guess.

4. Discuss how we get information about the world around us. How do we know if it is snowing? During the night, how do we know if it is raining? What might warn us of a fire? How might you know if you take a drink from the wrong cup of coffee? How might you find out that there is a tack on your chair?

Summarize that we collect information from the world around us through our five senses: sight, sound, smell, taste and touch.

5. Present two glasses with a liquid and an ice cube in each. Glass one has water in it and the ice cube floats. Glass two has rubbing alcohol in it and the ice cube is partially submerged. Ask the learners what they observe about the two glasses. Ask if anyone can explain why the two situations are different. Next, ask how they can collect information about the two situations. Stress that taste should never be used to collect information in an unknown situation since substances may be poisonous.. Touch and smell can also be dangerous since substances can burn the skin or the lining of the nose. Explain that taste will not be used in this situation but using the other senses is safe. Allow learners to investigate the two glasses. Someone will probably notice the smell of the rubbing alcohol. This could be tested further by putting some on the skin and feeling the cool sensation as it evaporates.

6. Ask what questions the learners have so far. Record these on a piece of newsprint. Explain that as questions come up throughout this theme, they will be added to the list. Encourage learners to provide information or bring in articles that answer questions which come up over time.

7. Present a sealed box with a ticking clock inside. Ask what learners think is inside. Allow them to pass the box around and investigate its contents. Identify that the sense of hearing helps them to tell what is in the box.

8. Ask learners how full they can fill a glass of water.. Allow several learners to fill glasses as full as they can. (Thin glasses work best.) Tell them you will show them how to fill the glass higher than its sides. Take pennies and drop them one at a time carefully into each glass and watch the level of the water rise above the top of the glass. Ask learners what their guess would be of why this is possible.

9. Next fill glasses as full as possible with detergent water. Drop in coins slowly. How high does the water level go?

10. Fill a bowl half full of water. Sprinkle pepper on the surface. Have learners describe what the pepper does. Now add a drop of detergent to the water. What does the pepper do? How is what the detergent does to the pepper like what they want detergent to do to the dirt on dishes? This would be a time to add to the list of ways that learners use science every day. When they use detergent, they are applying science in their everyday lives.

11. Place a drop of water on a sheet of wax paper. What happens? Place a drop of water on a paper towel. What happens? Why do they think that the drop of water looks different when it is put on a sheet of wax paper than when it is put on a paper towel? Again, add to the list of ways that learners use science every day. Do they dry their hands with wax paper or with a towel? Do they wrap lunch meat in wax paper or a paper towel before putting it in the refrigerator?

12. Place two ice cubes on a tray. Sprinkle salt on one ice cube. Notice what happens. Note that when learners put salt on an icy sidewalk, they are applying science.

13. Ask learners what happens when something is cooked. Record the answers on a sheet of newsprint. Ask questions as needed to determine that heat affects different foods differently. What happens when you cook an egg? What happens when you cook pasta? How does an ice cube change if it is heated? What happens to sugar? Identify foods that are starches or carbohydrates and others that are proteins. Discuss what happens when these foods are heated and see if a pattern emerges which can be turned into a hypothesis.

14. Ask learners to identify the colors in a set of food colors. Place a drop of each color on a paper towel and watch what happens. Ask the learners if they have any theories about what colors make up green, purple and orange.

15. Ask learners to discuss experiences they have had making paper airplanes. Pass out paper and have each learner who chooses to make his or her favorite model airplane. Have the class guess which plane will fly the farthest, the straightest, the highest and the longest. Test the planes. Examine the models which were superlative in each category and attempt to determine what characteristics made them the best. Test the hypotheses by making new planes and testing them.

16. Place three different seeds, for example, a kidney bean, an alfalfa seed and a lima bean, on a paper towel. Draw each seed. Fold the towel in half and moisten it. Have learners open the towel each day and draw what they see. Take a book out of the library to research the parts of a plant and the way that plants grow.

17. Bring in plants from home and explore different ways in which plants propagate. Take two cuttings from a philodendron. Place one in water and one directly in soil. Notice what happens. Cut a leaf from a snake plant into pieces two or three inches each. Place each cutting in soil. Watch what happens. If someone has a dracaena which has become too tall, cut the top off and see what happens.

18. Identify common fruits and vegetables and discuss how they propagate. Cut a sweet potato in half, stick four tooth picks into the sides a few inches from the cut end and place it in a jar of water so that the cut end of the potato is in the water and the tooth picks keep it suspended. Watch it over time.

19. Heat water in a whistling kettle. What makes the kettle whistle? To think about steam further, discuss why there is steam coming up through sidewalk grates.

20. Crack an egg into a bowl. Add oil. Mix and describe the results. Crack an egg into a blender. Blend the egg for a minute then add a little oil slowly. Describe the results. Have learners taste the results and see if they recognize what they have made.

21. Have learners select a topic which they have explore and research it further, for example, find out how steam is used.

Home Activities:

A. Activities for Parents

- What do you think your child is learning from the science activities you are doing? Write down one of the activities you did together and then tell what you think your child learned from it. What were the major components that made this a good learning experience?

- Keep a science section in your journal. Record ways that you use science in your daily life. Also, record questions for research.

B. Activities for Parents to Use with Children

- Exploration
  Choose one of the explorations done in class. Try it with your children and report back to the class on how it went.

- Seed Growth
  a) Take a lima bean seed, a glass jar, and a shopping bag.
  b) Cut a strip of paper from the bag the same height as the jar and long enough to fit around the jar.
  c) Wet the lima bean and place it between the paper and the glass.
  d) Place the jar in a sunny window.
  e) Ask children to predict what they think will happen to the seed. Write down all of their guesses and put the paper on the wall where the children can see it.
  f) Every day, sprinkle a few drops of water on the lima bean so that it stays moist.
  g) Observe the lima bean every day and see if there are any changes. Look for details such as a crack in the bean, a small root, a sprout or a change of color.

h) Have children tell what changes they observe. Write their observations on paper or let them write their own observations if they are able. Have children draw a picture each day to show what the bean looks like.

i) Encourage children to ask questions about the lime bean. What makes it grow? Why do the roots grow down and the sprout grows up? Record the children's questions.

j) After the roots have grown to about an inch, plant the seed in a flower pot. Have children water it and measure its growth every week.

k) Try this activity with other seeds and beans.

- Animal Observation

a) Get some peanut butter, pine cones, string and bird seed.

b) Tie a foot long piece of string to the pine cone.

c) Spread peanut butter all over the pine cone.

d) Put bird seed in a pan and roll the pine cone in the bird seed until all the peanut butter is covered with seeds.

e) Make several of these animal feeders and string them on trees outside the window where you can stand or sit comfortably and observe the animals.

f) Watch the animals that come to eat the seeds. How do they eat? What do they look like? Which animals come first? If a Martian came to your house, how would you describe the animals to him? Record your children's words. Have them draw pictures of the animals they see.

g) Observe the behavior of squirrels and birds. What do the birds do when the squirrels come? What do squirrels do when dogs or cats come? Why? Encourage the children to ask questions. Record their observations.

h) Make books on What Squirrels Do or What Birds Do. On each page have the children write or dictate one thing they have seen the animal do. Then, let them illustrate each page with a picture of the animal doing that thing.

i) Other observations

* Worms

  Dig for worms. Get a glass jar and fill it with dirt. Watch the worms and observe their behavior. Encourage children to ask questions and write them down,

* Pets

  If you have a pet, have your children observe the pet's behavior and make a book of all the things the pet does.

* Weather

  Take walks in the park or neighborhood, Observe how the trees look and what animals you see. Do this over the course of time and notice how what you see is different in winter than in summer.

Theme 8
Family Stories

Family Stories

Purpose:

1. Learn to value personal stories family history.
2. Record memories of childhood and family history.

Note:

These activities might remind participants of difficult memories. Students who had abusive childhoods may not be interested in doing some of the activities. Others, with the same type of background, may find the activities cathartic and get support from other learners.

Materials: Children's stories such as *Tell Me A Story Mama*
Autobiographies and personal stories such as "We Are West Philadelphians," *Roots, I Know why the Caged Bird Sings*, "Mother to Son," and *A House on Mango Street*
map of the U.S.
paper, pencils, blackboard, chalk, easel, markers

Class Activities:

1. Have learners read *Tell Me a Story Mama* and compare the events in the story to things that happened in their childhoods.

2. Discuss the importance of learners' telling their children stories from their childhoods. On newsprint, list their ideas about what children gain from this experience.

3. Have learners select a childhood memory and write about it. They may want to make a map before they begin writing. Have learners share their writings with each other.

4. Discuss ways to share these stories with children. If learners choose, a booklet could be compiled of all the learners' memories and parents could have a range of stories to tell their children.

5. Have parents bring in pictures of themselves as young children. Share the photos and talk about where and when they were taken. Mount or frame the pictures if the learners wish. Write a short caption describing the photo and the event. Photos and captions can be displayed around the room art gallery style if learners choose.

6. Read the excerpt "We Are West Philadelphians" from *Exploring Culture*.. Have learners share stories about growing up in their neighborhoods. What feelings did they have? Who did they go to when they had a problem? How did they learn the neighborhood rules? What obstacles did they face? What successes did they experience?

7. Have learners interview each other to identify where the other person was born, where he or she grew up, a happy memory and a sad memory from childhood, and the words to a song or the rules to a game that he or she remembers. Have learners write a story about the person they interviewed and share it with that person. Revisions should be made if necessary based on the comfort of the interviewee with the story. Type the stories on the computer and make a book of everyone's histories.

8. Look on a U.S. map, or world map if appropriate, and locate participants' places of birth. Discuss why the participants or their families left where they were and came to Philadelphia. Identify questions which learners cannot answer or areas in which they would like more information and use these for library research projects to be shared with the class.

9. Have learners select some of the following activities:

Read "Mother to Son" by Langston Hughes.

Discuss the poem. What does the mother mean by the crystal stairs?

Write letters to their children and tell them what life has been like for them. Include any advice they have for their children. Use metaphors if possible.

Read "Closets and Keepsakes" by William Coles.

Discuss and write about memories of a parent or grandparent, a special moment spent with him or her or something the participant learned from him or her.

Read selections from *A House on Mango Street* by Sandra Cisneros, for example, "Name."

Write about their names, why they were given those particular names, and what their names mean to them.

10. Read and discuss children's books with the theme of family, for example:

Amazing Grace by Mary Hoffman
A Chair for My Mother by Vera Williams
Just Us Women by Jeanette Caines
Mirandy and Brother Wind by Patricia McKissack
Grandmother's Quilt Valerie Flournoy

(All the above books are women-centered, multigenerational and about African-American families.)

Home Activities:

A. Activities for Parents

- Interview family members and record their piece of your family history.
- Identify the origins of your family on a U.S. or world map.
- Ask family members for information to answer questions which you had when you were writing you own story.

B. Activities for Parents to Use with Children

- Family Portrait
  Draw the members of your family and learn to write everyone's name

- Family Rules
  Write your family's rules

- Family Stories
  Parents can tell children family stories or share the stories which other adults in the class wrote.

- More Family Stories
  Have children tell the family stories which they remember. Adults can fill in details which children do not remember.

- Story Time
  Read books suggested in step 10 above.

Theme 9
Family Writing

Family Writing

Purpose:

1. Identify ways participants use writing in everyday activities.
2. Explore ways to use reading and writing at home with children.
3. Create writing kits for children to use at home.

Materials: paper, crayons, pens, pencils, blank note cards, sign paper, shoe boxes

Class Activities:

1. Have the parents discuss what they do when they sit down to write. Include in the discussion what works and what doesn't work, what helps them to write and what gets in the way. Record the learners' ideas on newsprint.

2. Talk about writing as a three step process. Write "Before Writing" on a piece of newsprint and ask learners to tell what they do before they actually start to write a paragraph or essay. Examples to be included on this sheet are: collect materials, research information, organize thoughts and list special words or phrases to include in the writing. Label a second sheet of newsprint "Writing a First Draft." Ask learners to tell what they do to get all of their ideas on paper. Examples might include: write without stopping, don't worry about spelling, draw a blank line for any thought that won't quite come, and add to the notes which they are working from. Write "After Writing" on a third sheet of newsprint and ask learners what they do after they have written a first draft. Ideas for this list include revise, edit, reorganize and rewrite all or part of the text. Ask learners to think about how they decide how much work they will do in step three of the writing process. Explain that the need for step three activities is based largely on the purpose of the writing and the audience. For example, a writing which is done for the purpose of getting one's ideas down on paper probably does not

need to be edited for spelling but may need to be reorganized to clarify one's thoughts. A letter which is written to a child's teacher should probably be edited for spelling and organization.

3. Brainstorm ways in which parents use writing in their everyday lives. Identify categories into which the writings fall, for example, personal notes, journals, cards, records, correspondence and reports. Explain that the intended readers of writing are the audience. Group the writings by audience: writing which only the writer needs to read and understand, writing to family or friends, and official correspondence.

4. Review the idea of writing as written communication. Point out that the purpose of writing is for the writer and reader to communicate. Explain that key pieces of this communication are what the writer intended to communicate and what the reader understands from the writing. Discuss miscommunication or misunderstanding and how these occur. Have learners discuss examples of times when they tried to communicate something but were misunderstood or times when they misunderstood another.

5. Point out that in oral communication there is often not an opportunity to plan what we say so that we say exactly what we want to say in just the right way. Writing, on the other hand, allows us to revise and edit our work before we present it to our audience.

6. Label a piece of newsprint with each audience identified above. List all of the considerations the writer should keep in mind when presenting his or her writing to each audience. In other words, what revising or editing should be done on each kind of writing.

7. Select pieces which were written previously. Identify the intended audience for each piece. Decide if the piece meets the standards which were set for revising and editing for that audience.

8. Have the parents work on their writings, revising and editing as they choose.

9. Discuss the relationship between reading and writing. Explain that reading is easier when it uses topics chosen by the reader using the readers own vocabulary and sentence structure. Describe how a language experience story is written by having one person dictate his or her own words to another who writes the words down exactly as spoken.

10. Have students practice using the language story with each other.

11. Try a variation on the approach for use with groups. Have each person contribute one or more sentences to a group story. This can result in stories which are interesting and often funny.

12. Type up all stories which the parents create in this way. These can be reread in class. Repeated reading is enjoyable and helps develop proficiency in reading.

13. Encourage parents to use the language experience approach with their children and share the results with the class.

14. Have parents create writing kits for their children by collecting pencils, pens, crayons and paper in shoe boxes.

Home Activities:

A. Activities for Parents

- Keep journals of observations made when your children are writing.

- Make a list of ways that writing would be helpful to you. Use writing in a few of these ways. Let your children see you writing.

- Start corresponding with a family member or friend who lives out of town. Share the letters with your children.

B. Activities for Parents to Use with Children

- Greeting Cards

  Make a family time when everyone makes cards for each other. You can write out the words the children want to spell, for example, Christmas, Valentine's, Love, or you can let them sound out the words themselves. Don't change how they have spelled things unless they ask for your help. Encourage children to make Get Well cards and Birthday cards for family and friends.

- Signs

  Make signs to place about the house to help children learn to read. For the beginning readers, signs should be simple. Put a sign on the door that says "door." Put a sign on a wall that says "wall." You can have a treasure hunt and ask children to find the words and guess what they say. Other words for beginning readers include: bed, table, lamp, sink and book. Have your children copy these words onto paper or three by five cards. They can start a collection of words that they are learning.

  For children who can read basic sentences you can have signs that tell children the order of things to be done when they come home from school. For example:

  Hang up your coat.
  Do your homework.
  Eat your snack.
  Help set the table.
  Eat dinner.
  Clear the dishes from the table.
  Play.
  Wash up and put on pajamas.
  Read a story with mom.
  Go to sleep and have sweet dreams.

  You can place this sequence of signs on the refrigerator door. Let children make pictures to go with each sentence. This way they

can remember what they say as they are learning to read the words.

Have your children write signs for their rooms such as "Tyrone's Room - Please Knock Before Entering."

- Notes

  Write notes to your children and encourage them to write notes to you and each other. Beginning writers may write their notes in pictures. Give them a small list of words they may need in order to write simple notes like "I love you." Ask them what words they would like on their list. Encourage children who can write simple sentences to write to you about how they are feeling. Remember not to correct spelling all the time. The purpose of writing notes is get children to write. You can answer them back in a simple notes. They will learn correct spelling from reading your notes. Children can have their own mail boxes by their beds. Use an old shoe box and let your child decorate it and have him write "Tyrone's Mail Box" on the side.

- Lists

  Have your children help you make lists for everything. List all the animals, fruits, vegetables, people and colors you know. Make lists of things that make you sad, happy, or mad. Make lists of things to buy, things to fix and things to do on the weekend.

- Name Writing

  Give your child a piece of paper and let him practice writing the letters of his name. Encourage your child to draw a picture of himself below his name. Once he has mastered the first name, you can teach him how to spell his last name.

  Children who are learning to print will often write letters backwards. Let them make their letters however they can. You can help by making connect the dot letters for your child to trace.

Theme 10
Child Development

Child Development

Purpose:

1. Increase parents' confidence and ability in using charts, diagrams and articles for information.
2. Share information and recognize each individual's knowledge and insights into child development.
3. Learn more about the different stages of growth (mainly intellectual) and appropriate learning environments, activities, concepts and skills for each stage.
4. Consider the "how's" and "why's" of using manipulative objects objects to support young children's learning.
5. Understand the importance of play in children's intellectual growth.
6. Explore parents' roles in their children's development.

Materials: worksheets
handouts on child development such as those found in *Developmentally Appropriate Practice in Early Childhood Program*, Sue Bredekamp, editor, or in other books or magazines

Class Activities:

1. Look at charts which show examples of the developmental stages of children. These can be found in parenting books and magazines. What charts are chosen will depend on the reading ability of the learners. However, it is important that the charts do not present the information in such a simplified way that learners think these are absolutes. Have learners discuss their own experiences with their children's development and how their experiences match the charts.

2. Have each parent find the place on the chart for one of his or her children. Review the characteristics of children of that age and discuss what specific activities may or may not work well with that age group and why.

3. Explain to parents that guidelines for child development which will be explored should never be taken as strict rules for what children should be able to do a particular age. There is a wide range in what is considered normal development. It is important not to feel that something is wrong with a child because he or she didn't do something exactly at a certain age. Ask parents if they have had any experiences which support the fact that different children develop at different rates. Ask learners to share any experiences they have had with a child who did something unusually early or late. If parents do have "developmentally delayed" children (for example, a 1st grader who can't recognize any letters or numbers), most likely their children have been tested, or teachers have spoken to the parents about it. Let parents share these experiences with each other. The purpose of such discussion should be support, not diagnosis. If there is a problem which has not been addressed professionally, the teacher should help the parent to identify appropriate resources.

4. Bring in the school's reading or resource room specialist to talk with parents about cognitive development and detecting delays in development. Allow plenty of time for parents to ask questions. Have the speaker talk about how the school programs support children's development, the meaning of terms such as learning disabled, the purpose of special programs offered in the system and what parents can do when working with their children.

5. Bring in a parent advocate to talk about the positive and negative aspects of tracking and special programs as well as parents' and children's rights.

6. Read "Learning All the Time" by John Holt or a similar article which discusses learning as an activity which takes place in everyday situations. Have parents complete the worksheet or write their thoughts on the article and then discuss it in small groups.

7. Discuss ways in which parents and children can interact. Label one sheet of newsprint "responsive" and a second sheet "directive." Ask parents to identify times when parent/child interactions should be responsive and times when they should be directive. Make sure to identify the age of the child when determining which category the interaction falls under. For example, if a four year old announces that he is going to make himself some soup, the parent might say, "I will come in the kitchen and we will make soup together. You are big enough to choose the kind of soup you want, open the can, and set the table. You are not old enough yet to turn on the stove." If an eight year old said the same thing, the parent might say, "That sounds like a good idea. I was just wondering what to make for lunch. Can you make enough for two?"

8. Do the activity "Who Are Your Children?" on the worksheet which follows. Talk about the fact that often we take things for granted about those close to us. Point out that this activity will help the learners to focus on their children in a way they may not very often get a chance to do.

9. Discuss the importance of planning activities to do with children. Have learners share funny stories about how things can go wrong.

10. Look again at charts which show the developmental stages of children. Have learners work in small groups to plan an activity for children of a given age group. It might be a good idea to have the learners group together based on the age group which interests them. Have learners work together to complete the "Activity Planning" worksheet.

11. After each group has planned an activity, come back together and share these. Learners should share their comments on the activities, noting anything they like and citing any concerns which they have about the activity particularly as it relates to its appropriateness for the age group selected.

12. Have learners return to the small groups and make any revisions to their plans. The final plans should be collected and compiled as an activity resource packet for parents.

13. If it is possible to plan a trip for parents and children together, select a trip to a site which emphasizes learning through play. (In Philadelphia, our choice was the Please Touch Museum.) Have parents identify what planning needs to occur for the trip to be educational and fun for everyone. Have the parents identify committees to take responsibility for the various activities. Have the committees meet, identify what they need to do and who will do each piece.

14. Have the committees report their plan back to the entire group. Depending on the time involved, daily or weekly committee planning time and time to report back to the group should be incorporated into the class.

15. After the trip is over, have each committee review how their activities went. Then, have committees report back to the group how they feel their plan went and what, if anything, they would do differently in the future.

16. Look at the worksheet Analyzing Behavior. Go over the first example together and discuss why the child is behaving as she is. Record all ideas on newsprint. Have learners record their own ideas or the ideas of others with which they agree on their worksheets. Have learners work together in small groups to discuss the other two scenarios. Emphasize that there are no right and wrong answers. However, there is important information which should be taken into account, the knowledge and experience which they have as parents and what they have learned about child development in this theme.

17. Discuss the importance of play in children's learning. Read and complete the activities on the worksheet The Importance of Play. Share ideas of how to encourage active and creative play in children.

18. Look for ideas in game books such as *Learning Games for Infants and Toddlers: A Playtime Handbook, Parents As Playmates: A Games Approach To The Pre- School Years, The New Games Book* and *The More New Games Book.*

Home Activities:

Activities for Parents

- Choose one child and observe him as he plays, reads, does his homework or eats. Observe him for at least five minutes and jot down anything he does and how he does it. Use descriptive words which would help others to picture the action. Bring your writing to class and share if you choose.

- Observe a child for a longer period of time in which the child is free to choose his activity. Time how long the child stays with an activity. Bring this information to class and compare it with other parents. Use the information to create a chart of attention spans of children by age.

B. Activities for Parents to Use with Children

- Everyday Learning
  Look for everyday learning opportunities to share with your child.

- Responding
  Identify a situation in which you would like to be responsive rather than directive with your child. Make a plan. Think of questions you would use in the situation. Try your plan and keep notes on how it worked.

- Who Are Your Children?
  Share this worksheet with your children. Use it as an opportunity to tell them how they are special.

- Activity Planning
  Try an activity from the Activity Planning Worksheets completed by the class.

Learning All the Time

What does John Holt mean in his article when he says that there is a fine line between being intrusive and being responsive?

Why is it important for children to make their decisions about how to figure something out? Give an example of a situation in which you watched your child figure something out on his own and did not give him the solution to his problem (anything - from math, to tying a shoe.)

Who Are Your Children?

List the names and ages of your children and grandchildren. Put a check next to the names of the children you are currently raising.

Now copy the names of the children again and next to the name, put three words that describe that child.

For each child, write a brief history of what you remember about his or her development. Include things like the age at which the child walked, talked, learned to read and learned to write.

Activity Planning

Imagine you and your fellow parents and grandparents are planning educational activities for some children for a rainy day. The children range in age from three to seven years. Each pair will select an age group for which they will create an activity. Use the charts on child development for making decisions about the activities you will do.

What is the age group of the children?

What activity will you do?

How long will the activity last?

What objects will you use?

How you will use them?

Analyzing Behavior

Let's use our experience as parents to analyze why children behave certain ways at certain ages.

One year old Jenna crawls around the house. She tries to put her finger in the electric socket, she pets the cat roughly, she crawls to a plant and puts dirt in her mouth and then she tries to climb up the stairs and falls on her head. Jenna's dad yells at her and tells her that she's bad and always getting into trouble. Why do you think Jenna did those things?

Five year old Michael wants to hear his mom read *The Little Red Hen* to him every night. When his mom tells him she is bored with this story and wants to read another one, Michael throws a fit and starts to cry, "No, I Want *The Little Red Hen*." His mom says he is a spoiled baby and tells him that when he calms down she'll read him *The Three Bears*. Why do you think Michael likes to hear *The Little Red Hen* every night?

Seven year old Ruby is doing her math homework. She must add seven plus three. She holds up seven fingers and then she holds up three fingers and counts them. Her grandmom yells at her and tells her not to use her fingers. She tells Ruby that's for babies and children who don't know their math. Why do you think Ruby is using her fingers to count?

The Importance of Play

What is play? What kinds of things are your children learning when they play? Read the kindergarten story below. Then, make a list of the things you think each child was learning.

Emily, a four and a half year old, is sitting at a table with Laura, also four and a half, and Zoe, a five year old. Emily is cutting circles. She puts the circles in one pile. She then cuts two rectangles and puts them in another pile. "These are watches and these are grandfather clocks," she says and turns to the assistant teacher, Ellen. She asks, "How do you make the lines on your watch?" Ellen brings Emily a Judy Clock. "Does this help?" Emily takes it enthusiastically. "Oh yea, yea!" Emily makes many lines and then places numbers on the clock. There are more lines than numbers, but she does not mind. After making her clocks and watches, she begins to circle the room announcing, "Clocks for sale!" She approaches the teacher, "Do you want to buy a watch?" she asks. "How much are they?" the teacher replies. "They are free!" Emily answers and hands the teacher a grandfather clock and goes back to selling her watches.

Meanwhile, Laura is also cutting circles and coloring them with crayons. She circles the room calling, "Perfume for sale!" One child stops her and smells a red circle, "Mmmmm, cherry perfume!" the child exclaims. "Yes, and if you wear it butterflies will smell it and tickle your ears," Laura replies. Zoe finishes her drawing and comes running to the teacher, asking impatiently, "How do you spell 'Fashion Model Dress for Sale, sixteen hundred dollars'?" The teacher pronounces each work separately as she spells it and then stops. "Do you want to write the numbers?" she asks. Zoe takes the crayon and repeats each number as the teacher says it. She then parades around the room saying, "Beautiful fashion model dress for sale, sixteen hundred dollars!"

What do you think each child is learning?

Emily:

Zoe:

Laura